



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,331	12/05/2003	Jung-Chih Tsao	67,200-1156	5064

7590 01/25/2007  
TUNG & ASSOCIATES  
Suite 120  
838 W. Long Lake Road  
Bloomfield Hills, MI 48302

EXAMINER
----------

ZHENG, LOIS L

ART UNIT	PAPER NUMBER
----------	--------------

1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/731,331	TSAO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Lois Zheng	1742	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 13-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Invention Group I, claims 1-12, in the reply filed on 1 November 2006 is acknowledged. Since applicant has not provided ground for the traversal, this claim election is treated as election without traverse.

The requirement is still deemed proper and is therefore made FINAL.

Claims 13-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Invention Group II, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 1 November 2006.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "76" has been used to designate both central air source as shown in Fig. 3 and magnetic field as shown in Fig. 4.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig. 4 # 72.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "said air platen" in line 3. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Lakshmikanthan et al. US 6,228,233 B1(Lakshmikanthan).

Lakshmikanthan teaches an electroplating cell comprising the claimed bath container, anode, current source and contact ring(Fig. 2 #102, 108, 122 and 114).

Regarding claims 1 and 7, Lakshmikanthan further teaches that its electroplating cell comprises a variable pressure application system. The variable pressure application system as taught by Lakshmikanthan comprises a mounting plate, a bladder assembly located at the edge region of the mounting plate and a pressure/vacuum pumping system located at the center region of the mounting plate(Fig. 2 # 132, Fig. 2A # 130 and Fig. 2 # 159). The bladder assembly, connected to a pressure source(Fig. 2 #138), when inflated pushes the wafer against the contact ring, which is located at the peripheral region of the wafer, to position the wafer and establishing the electrical connection to the wafer(col. 6 line 41 – col. 7 line 8). The pressure/vacuum pumping system, connected to a separate pressure source(Fig. 2 # 145), applies pressure to the backside of the wafer to create a bowing effect that results in superior deposition(col. 7 lines 42-55). Since the pressure from the bladder system and the pressure/vacuum pumping system as taught by Lakshmikanthan can be separately controlled(col. 6 line 66 – col. 7 line 3, col. 7 lines 46-50), the examiner concludes that the variable pressure application system of Lakshmikanthan is capable of asserting a lower peripheral pressure and a higher central pressure on the wafer as claimed.

Regarding claims 2 and 8, the mounting plate as taught by Lakshmikanthan reads on the claimed thrust pad.

Regarding claims 3 and 9, Lakshmikanthan further teaches that the gas supply used for inflating the bladder assembly can be air(col. 6 lines 46-48). The examiner believes that using air as gas supply for the pressure/vacuum pumping system is also within the scope of Lakshmikanthan's invention. Therefore, the gas supply for the

Art Unit: 1742

bladder system of Lakshmikanthan reads on the claimed peripheral air source and the gas supply for the pressure/vacuum pumping system of Lakshmikanthan reads on the claimed central air source.

Regarding claims 4 and 10, the mounting pad as taught by Lakshmikanthan is capable of engaging the variable pressure application and the contacting for transmitting a central pressure and a peripheral pressure as claimed.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-6 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lakshmikanthan in view of Dordi et al. US 6,416,647 B1(Dordi).

The teachings of Lakshmikanthan are discussed in paragraph 6 above.

Lakshmikanthan further teaches that its bladder system comprises a plurality of inlet ports provide gas supply to inflate the bladder system(col. 5 lines 15-23, col. 5 line 66 – col. 6 line 2). Therefore, the plurality of inlet ports in the bladder system as taught by Lakshmikanthan reads on the claimed plurality of peripheral air openings.

However, Lakshmikanthan does not explicitly teach the claimed plurality of central air openings.

Dordi teaches an electroplating apparatus comprising plurality of openings on the wafer supporting surface for blowing gas flow to the backside of the wafer in order to prevent backside contamination(abstract).

Regarding claims 5 and 11, it would have been obvious to one of ordinary skill in the art to have incorporated the plurality of openings as taught by Dordi into the pressure/vacuum pumping system of Lakshmikanthan in order to prevent backside contamination as taught by Dordi. Therefore, the plurality of openings in the pressure/vacuum pumping system of Lakshmikanthan in view of Dordi meets the limitation of the claimed plurality of central air openings.

Regarding claims 6, the mounting plate as taught by Lakshmikanthan reads on the claimed air platen for transmitting a center pressure and a peripheral pressure as recited in instant claim 6.

Regarding claim 12, the instant claim is rejected for the same reasons as stated in the rejection of claim 10 above.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LLZ

  
ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1742